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NATIONAL LABORATORY

TA-53 Facility Management

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TA-53 Facility Implementation Requirement

Limited Access Areas

53 FIR 402-701-01.0

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1.0 Introduction

The TA-53 Prompt Radiation Protection Standard, 53 FMS 107-01, requires that areas for which the radiation shielding does not limit the potential radiation dose rate to 25 rem/h for the design basis accident have special access controls based upon evaluation and acceptance of risk by the operating organizations. Permitting access to such areas can be dependent on the existence of active protection devices, supplementary interlock checks and additional training for those personnel granted access. The LANSCE Accelerator Radiation Safety Committee (RSC) and the facility owner (LANSCE-Division Director) have approved the creation of Limited Access Areas to permit controlled access to such areas.

Access to Limited Access Areas (LAAs) will normally be controlled by badge reader systems that release/unlock doors only when activated by Laboratory or Visitor badges encoded with a number that has previously been entered on an access control list.

2.0 Purpose

This implementation requirement establishes the requirements for controlling access to and entering LANSCE Limited Access Areas. The procedure specifies the beam delivery system conditions, supplemental interlock checks, training and dosimetry requirements, and other conditions that must be met before entry is allowed by the accelerator operating organization. It also contains the specific steps to be taken to authorize properly trained individuals to access the areas through the badge reader-controlled entry points, and to verify the proper operation of the badge reader systems.

3.0 Scope

This implementation requirement applies only to Limited Access Areas as defined by the RSC, and to the badge reader systems used to control access to them.

4.0 Definitions

Access Authorization List — A computerized list of persons and their associated identification number(s) that is compared with data read by a badge reader to determine if the badge holder is authorized to have access to an area.

Badge Reader — A device capable of detecting the presence of information coded in the magnetic strip on an identification card, credit card, etc., and communicating that information to a control device.

Designated Access Monitor — A Limited Access Area-trained person designated by line management to perform the access control functions at an entry point to an LAA that does not have a badge reader (see para. 7.6.2 for applicability).

Limited Access Area — An area at LANSCE which is posted as a Radiation Area or Controlled Area under normal operating conditions but in which, for the facility design basis accident, radiation dose rates might exceed 25 rem/h. Designation as a Limited Access Area is recommended by the LANSCE Radiation Safety Committee and concurred with or approved by facility management, and requires that the area must be protected from the design basis accident by active radiation detector(s) and that additional (more frequent) interlock checks that reduce the probability of an undetected accident to an acceptable level be done.

5.0 Responsibilities

TA-53 workers and visitors have the following responsibilities:

If you are …	**you will …**
A Laboratory badge holder with Limited Access Area authorization(s)	Use your badge to gain access to and exit Limited Access Areas you are authorized to enter. Wear the required dosimeters when occupying a Limited Access Area. Not let any other personnel use your badge or enter on your authorization, except as provided for in section 7.6.1. Obtain area-responsible line management approval of entry to Limited Access Areas by untrained visitors (Atch. 3 may be used). Report problems encountered in using badge readers to the LANSCE Central Control Room (CCR). Remain with any visitor you are escorting.
A visitor without training required for Limited Access Area entry	Submit, in writing, a request for entry and an acknowledgement of hazard notification (Atch. 3 may be used). Remain with your escort at all times within a Limited Access Area.
A member of the LANSCE Training Office staff	As soon as practical, preferably within 4 hours after completion of personnel training, enter the access control information for personnel authorized to have access to Limited Access Areas, using the procedures in Attachment 1. Remove persons from the access lists as requested by facility tenant organizations.

If you are …	**you will …**
The LANSCE-6 Operations Shift Supervisor (OSS)	Ensure that badge readers controlling entry to Limited Access Areas are disabled whenever the conditions for access are not met. Inform the Facility Manager On-Call if problems with the badge reader system are reported.
A member of the LANSCE accelerator operating crew	Perform the steps in Section 7.3 of this procedure to verify correct operation of the badge reader system whenever a badge reader is disabled or enabled.
The Facility Manager	Ensure that badge reader systems meet the Life Safety Code and Laboratory Standards. Ensure that alternative means of access are available should a badge reader malfunction. Implement a system for maintaining badge reader systems in operating condition. Implement a system for controlling information entry onto and deletion from access authorization lists. Prior to each operating period and following any maintenance on a badge reader system, verify that the affected access authorization list(s) limits access as intended.
A Designated Access Monitor	Continuously monitor your assigned door or access way and deny access to persons without the training and dosimetry specified in section 7.2 of this procedure. Should anyone without the required training or dosimetry insist upon entering, contact CCR immediately and request that the beams in the vicinity of the LAA be turned off.

6.0 Precautions and Limitations

Laboratory badges have a magnetic strip that can be encoded with information about the bearer. The Laboratory Badge Office generally will not encode the magnetic strip on visitor badges unless requested. For this reason, hosts of visitors who need access to Limited Access Areas should make a notation on the badge request (Form ST2661),

Please encode with information for automated access control. Guest badges issued by the LANSCE Visitor Center are encoded for use with badge readers.

The control computer for the badge reader systems is set up to control access to different "areas." Each defined area has a set of badge readers associated with it. There is a single "user list" and each user is authorized to enter one or more "areas." Write access to the user records is password protected; however, there is no provision for separate password-protected control of authorization for different areas.

7.0 Limited Access Area Entry Requirements

7.1 Engineered Safety Systems

All components of engineered safety systems and all interlocks that control beam delivery in the vicinity of Limited Access Areas must be operable. In addition, radiation detection instrumentation and current limiting devices must be checked as follows:

- HPI Model 2080 neutron detectors located in active Limited Access Areas must be source checked weekly.

- Beam current limiters (XLs) in beam lines near the area must be checked weekly to demonstrate their ability to insert the appropriate RSS beam plugs.

7.1.1 Establishing Limited Access Areas

The LANSCE-6 Operations Shift Supervisor (OSS) determines whether all components of engineered safety systems and all necessary interlocks controlling beam delivery in beam lines in proximity to a Limited Access Area are operable. The OSS then directs a member of the operating crew to enable and perform the operational verification steps on the badge reader(s) controlling access to the area.

7.1.2 Disabling Limited Access Areas

The LANSCE-6 SMOC shall immediately communicate to the OSS any engineered safety system or other interlock status conditions that affect access to Limited Access Areas (e.g., an interlock bypass). The shift supervisor shall then direct a member of the operating crew to disable and perform the operational verification steps on the badge reader(s) controlling entry to the affected areas.

7.2 Training and Dosimetry

Note: See paragraph 7.6 regarding exceptions for untrained visitors or Users.

Personnel granted access to Limited Access Areas must complete:

- LANSCE Limited Access Area training for those areas to which access is required,

- DOE Radiation Worker I training,
- TA-53 facility-specific ES&H training.

LANSCE Users may substitute TA-53 Radiation Worker training for RadWorker I.

Limited Access Area training is required every two years and consists of the following training modules (EDS course numbers in parentheses):

- Overview and Albatrosses (12047) — required for all areas
- ER1 (12046)
- MEB (12048)
- Lujan 1L Compressor Building Area (12049)

Personnel accessing a Limited Access Area must wear a personal TLD and a PN-3 neutron dosimeter. (See also 7.6.2 regarding tour dosimetry.) Dosimeters for visitors and LANSCE Users are issued at the TA-53 Visitor Center after completion of required training. Laboratory and sub-contractor personnel may obtain PN–3 dosimeters from the ESH-1 team office in MPF-394.

7.3 Access Control System Operational Verification

Prior to each accelerator operating period, and upon completion of maintenance on the badge reader systems, the TA-53 Facility Manager must ensure that the badge reader system(s) controlling access to Limited Access Areas are working properly. The checklist in Attachment 2 should be used for this purpose.

Whenever the controls for a Limited Access Area entrance are enabled or disabled, the integrity of the access control list must be verified. The LANSCE Operations Shift Supervisor is responsible for ensuring that the steps below are followed.

7.3.1 When a Badge Reader is Disabled

Follow the procedure(s) for MP-202 Area Sweep and Entry in the LANSCE-6 Accelerator Operations Manual, Chapter 6, Sections 5.59–5.61.

7.3.2 When a Badge Reader is Enabled

Follow the procedures for Establishing Limited Access Areas in the LANSCE-6 Accelerator Operations Manual, Chapter 6, Section 5.62

7.4 Authorization for Limited Access Area Entry

Authorization for entry to Limited Access Areas is controlled by the LANSCE Training Office. Upon completion of the Limited Access Area training and verification of Facility-Specific ES&H training and RadWorker I training (or equivalent), the Training Office will enter the authorized person’s name, Z-number, social security number (SSN), employer, LANL organizational affiliation, and the

expiration date of the first of the required trainings to expire into the database for the appropriate badge reader control computer(s), following the steps in Attachment 1.

Note: Communications containing social security numbers may not be sent via e-mail.

Note: The Facility Manager may appoint a person to back up or assist the Training Office with database maintenance.

Should it be necessary to remove a person's authorization for entry to an area prior to the expiration of training, that person's organization or host is responsible for notifying the LANSCE Training Office, who will remove the individual's authorization following the steps in Attachment 1.

7.5 Consequences of Willful Violation of Requirements

The following consequences for willful violation of Limited Access Area requirements have been established by the facility:

- First offense — warning and oral counseling from line management
- Second Offense — loss of Limited Access Area authorization and (for Los Alamos employees) memo to personnel file
- Third offense — loss of experimental area privileges and (for Los Alamos employees) disciplinary action

7.6 Alternate Means of Access

7.6.1 Non-Functional Badge Reader Systems

An alternative to badge reader controlled access must be provided for occasions when the badge reader systems are not functional (such as during power outages). Access points to Limited Access Areas will be locked using LANL MP-202 lock cores. The MP-202 key is controlled by the accelerator operations Shift Supervisor and may be used only when the beam is off. A variation to this procedure is allowed in ER-1 when special access, for example by explosive handlers, is required. In this case, the badge readers are locked out with an MP-303 lock and individuals with access permission are issued an MP-303 key for access to ER-1. This variation is conducted in accordance with the Accelerator Operations Manual, Chapter 6.

7.6.2 Entry without Required Training

If it is necessary for a facility visitor or User to enter a Limited Access Area when the training requirements cannot be met, the visitor or User must sign an acknowledgement of hazard notification and the individual's request for entry must be approved by a line manager responsible for the LAA. Attachment 3 (or other forms with the same content) should be used for this purpose. The visitor or User

must be accompanied, at all times in the LAA by a person who meets the LAA training requirements and has current access authorization. Under these conditions, the Laboratory's policy on tour dosimetry (LPR 402-706) may be applied. Attachment 1 to 53 FMP 406-300-01, *Visitor Tours at TA-53*, should be used to document applicability of dosimetry. Approvals under this paragraph should be granted for the minimum length of time needed for the visitor or User to accomplish his/her work; appropriate training and dosimetry should be obtained for frequent or extended visits.

7.6.3 Entry through Passages without Badge Readers

If it is necessary to transport equipment into or out of a Limited Access Area that is not equipped with a badge reader, an RWP allowing for the access control function to be performed by a designated access monitor may be approved by a line manager of the organization responsible for the LAA. The designated access monitor must be authorized to enter the LAA and is responsible for verifying that all persons entering the LAA through his/her assigned passage have the required training and dosimetry. The RWP must contain the name(s) of the designated access monitors and be posted at the passageway. Such RWPs should be written for the minimum length of time needed to efficiently move the equipment.

7.6.4 Entry under Abnormal Interlock Conditions

If it is necessary for anyone to enter a Limited Access Area when the normal interlock conditions do not apply and the badge readers have been disabled (see Section 7.1), an RWP may be approved by a line manager in either the LANSCE accelerator operations organization or the organization responsible for operations within the LAA. The RWP must describe the abnormal interlock condition and must address the additional risk under that condition. See 7.6.1 for conditions where the MP-303 key is used.

7.7 Trouble Reports

Problems encountered by authorized badge holders should be reported to the LANSCE Training Office (665-6256) or to the Facility Management Office (665-2584). If possible, trouble reports should explain whether the fault is isolated to a single badge reader or entrance, or to a specific badge.

8.0 Required Records

Records of completion of required training are kept in the Laboratory's Employee Development System (EDS).

Records of accesses granted and accesses denied will be kept for a minimum of three months. Laboratory managers with a legitimate need-to-know may request printed copies of access records from the facility management office.

9.0 References

LPR 402-701, *Access Control*

LPR 402-706, *Personnel Dosimetry*

53 FMS 107-01, *Prompt Radiation Protection*

53 FMP 406-300-01, *Visitor Tours at TA-53*

TA-53 Radiation Safety Committee minutes, January 16-17, 1996

10 CFR 835, *Occupational Radiation Protection*

LANSCE-6 Accelerator Operations Manual, Chapter 6

Los Alamos National Laboratory ES&H Alert No. 0020 *Configuration of Badge Reader and Door Lock Violates NFPA Life Safety Code 101*, January 31, 1995.

10.0 Attachments

Attachment 1 — Data Entry into Badge Reader Databases

Attachment 2 — Checklist for Limited Access Area Badge Reader Validation

Attachment 3 — Limited Access Area Entry Request and Hazard Acknowledgement

Data Entry into Badge Reader Databases

1.0 Entering a Newly Authorized Individual

New authorizations are entered by following the steps below:

1.1 Gain access to the main menu by entering the password (lower case only).

1.2 Click on User Menu.

1.3 Click on Add User.

1.4 Enter the Z number, Alternate Z number (SSN), last name, first name, middle initial, company (employer), and group (LANL host group) in the corresponding fields on the data entry form.

> Note: For Visitors, enter the 5-digit visitor badge number (located in the upper right corner of the badge) in both the Z number and Alternate Z number fields. Precede 4-digit numbers with an "8"; precede 3-digit numbers (found on Escort Required badges) with "80."

1.5 Click on buttons to set expiration date (left button up, right button down). Expiration dates should be set for one month after the training date specified by the training office to allow a one-month "grace period" for scheduling of retraining.

1.6 Click on Area Access to get to area choice dialog box.

1.7 Click on area number(s) for the Limited Access Area (s). (Number is highlighted when selected.)

1.8 Click on Accept New User.

1.9 If no more new entries are to be made click on Return to Main Menu.

1.10 Click on Lock to password protect the system.

2.0 Updating the Authorization of a Person Already Entered Into the System

Individuals being granted access to a Limited Access Area may already have a record in the badge reader database because of a previous authorization to enter an administratively controlled area. Should this be the case a request to create a new record using the steps in section 8.1 will result in an error message. To modify a user record to add authorization for entering a Limited Access Area, follow the steps below:

2.1 Gain access to the main menu by entering the password (lower case only).

2.2 Click on User Menu.

2.3 Click on Modify User.

2.4 From the alphabetical list of users choose the individual to be updated. (Click on the person's name.).

2.5 Click OK.

2.6 Click on Area Access to get to area choice dialog box.

2.7 Click on area number(s) for the Limited Access Area (s). (Number is highlighted when selected.)

2.8 Click on buttons to set expiration date (left button up, right button down). Expiration dates should be set for one month after the training date specified by the training office to allow a one-month "grace period" for scheduling of retraining.

2.9 Click on Accept User Modification.

2.10 If no more modifications are to be made click on Return to Main Menu.

2.11 Click on Lock to password protect the system.

3.0 Removal from an Access Authorization List

Authorizations for areas are removed by following the steps below:

3.1 Gain access to the main menu by entering the password (lower case only).

3.2 Click on User Menu.

3.3 Click on Modify User.

3.4 From the alphabetical list of users choose the individual to be updated. (Click on the person's name.)

3.5 Click OK.

3.6 Click on Area Access to get to area choice dialog box.

3.7 Click on area number(s) for the Limited Access Area (s). (Number is highlighted when selected. Highlight color will disappear when the area is unselected.)

3.8 If the user has authorizations for administratively controlled areas on the same system, adjust the expiration date accordingly.

3.9 Click on Accept User Modification.

3.10 If no more modifications are to be made click on Return to Main Menu.

3.11 Click on Lock to password protect the system.

Checklist for Limited Access Area Badge Reader Validation

This checklist is to be followed with the badge readers enabled. The person performing the validation must initial each action that is successfully completed, sign and date the second page, and return the checklist to the TA-53 Facility Manager. If any actions are not successfully completed both steps for validating the Limited Access Area must be repeated after the problem is corrected.

I. MEB

Attempt Authorized Entry

Using a badge known to be valid for the MEB Limited Access Area, attempt to gain entry by swiping the badge through the badge reader. Verify at the badge reader computer display that the badge was read and that access was granted. Verify at the entrance that the access was permitted. _____

Attempt Unauthorized Entry

Using a badge known not to be valid for the MEB Limited Access Area, but which is valid for entry to the REB, attempt to gain entry by swiping the badge through the badge reader. Verify at the badge reader computer display that the badge was read and that access was denied. Verify at the entrance that the access was not permitted. _____

II. 1L Compressor Building Area

Attempt Authorized Entry

Using a badge known to be valid for the Compressor Building Limited Access Area, attempt to gain entry by swiping the badge through the badge reader. Verify at the badge reader computer display that the badge was read and that access was granted. Verify at the entrance that the access was permitted. _____

Attempt Unauthorized Entry

Using a badge known not to be valid for the Compressor Building Limited Access Area, but which is valid for entry into the REB, attempt to gain entry by swiping the badge through the badge reader. Verify at the badge reader computer display that the badge was read and that access was denied. Verify at the entrance that the access was not permitted. _____

III. ER1

Attempt Authorized Entry

Using a badge known to be valid for the ER1 Limited Access Area, attempt to gain entry by swiping the badge through the badge reader. Verify at the badge reader computer display that the badge was read and that access was granted. Verify at the entrance that the access was permitted. _____

Attempt Unauthorized Entry

Using a badge known not to be valid for the ER1 Limited Access Area, but which is valid for MPF-622, attempt to gain entry by swiping the badge through the badge reader. Verify at the badge reader computer display that the badge was read and that access was denied. Verify at the entrance that the access was not permitted. _____

_____ _____

Signature Date

Limited Access Area Entry Request and Hazard Acknowledgement

Visitor/User Name _____ **Z/V Number** _____

I request temporary access to the following LANSCE Limited Access Area(s). I have been informed of the hazards present in the area I will be visiting and understand that high radiation levels can exist in a Limited Access Area under abnormal accelerator operating conditions. I understand that my safety may depend on staying with my escort and following his/her instructions, and agree to these conditions.

- ❒ **ER-1**
- ❒ **MPF-7 Mechanical Equipment Building**
- ❒ **Lujan Center Cryogenic Systems Area**

Visitor/User Signature _____ **Date** _____

Escort Name _____ **Z Number** _____

Valid for Date(s) of Entry: _____

Comments/Conditions for Entry:

Management Approval (Line manager responsible for LAA.)

Approved by _____
Signature

_____
Printed Name